

TIIAP FY 1999
Project Narrative

Orange County, Florida

Grant # 12-60-99008

Public Safety

Winter Park, Florida

*Orange County Office of Emergency Management
Automated Emergency Information System*

March 5, 1999

Telecommunications and Information Infrastructure Assistance Program
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW
HCHB, Room 4092
Washington, D.C. 20230

Dear TIIAP Grant Review Committee:

On behalf of the citizens of Orange County and the staff of the Office of Emergency Management, I am providing this grant submission for our proposed **Automated Emergency Information System (AEIS)**.

The proposed Orange County AEIS is an innovative comprehensive approach to obtaining maximum public benefit from a wide variety of public safety information tools tied into an effective emergency management package. If funded, this system would allow local emergency response agencies to rapidly warn, respond to and assess specific at-risk target populations such as mobile home residents, nursing homes, apartment complexes and the medically needy isolated - known locally as People With Special Needs.

This highly integrated information package could serve as a valuable and easily exportable model for other public safety organizations in the country that have a need to rapidly receive, analyze and transmit emergency incident data through a single bundled automation package.

I sincerely hope that this grant submission will receive favorable consideration by your public safety review committee so that we can begin to provide the extended critical services such a project will provide. In addition, please feel free to contact me in regard to any aspect of this project that may arise. I can be reached at (407) 836-9140.

Sincerely,

Robert L. Lemley, CEM
Executive Director

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EXECUTIVE SUMMARY

This is a project intended for the **Public Safety** primary application area.

This proposal, the Automated Emergency Information System (AEIS), has the primary goal of integrating multiple weather information systems, rapid citizen warning capabilities, county to municipality communications processes and aerial damage assessment/scene visual analysis functions into one comprehensive package. The anticipated outcome of this proposal is to overcome the multi-agency shortcomings experienced in recent disasters, mitigate future incidents and provide expanded warning capabilities to vulnerable mobile home, rural and health care facility populations. The success of this project will be measured by a reduction in the future loss of life or injury, through increased effective communication across jurisdictional boundaries and through a more enhanced countywide recovery capability overall.

When completed, this system will reside in the existing combined County EOC/Sheriff/Fire 911 Center with related mobile sub-elements of the system installed on county aviation assets and a mobile command post vehicle. The AEIS will provide benefits to the most vulnerable rural/suburban town, city and county residents, emergency response agencies as well as all thirteen municipal governments within the county. The value of this proposed system extends to private and volunteer agencies as well, who in past incidents have played such a vital role in local, regional and national disaster support efforts.

AEIS is a sincere attempt to bundle existing public safety technology to address multi-agency and multi-jurisdictional weaknesses that directly impact the lives of all residents as well as specific vulnerability population segments. This project has the additional potential to serve as an exportable model to other public safety organizations nationally.

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PROJECT NARRATIVE

PROJECT PURPOSE

Problem

Orange County, Florida is vulnerable to many types of natural and man made disasters ranging from hurricanes and tornadoes to wildfires and airplane crashes. Encompassing an area of over 1,000 square miles the county has a current population of 824,095 with some 80,000 of these residents residing in mobile homes, 7,000 residing in 34 nursing homes and another 4,000 living independently throughout the county but registering with county health agencies as medically needy. 540,740 reside in the unincorporated areas of the county. While the county and the thirteen towns and cities within have a comprehensive emergency management plan, disparities in warning, communication and weather monitoring systems result in fragmented response capabilities.

In February, 1998 a series of deadly tornadoes struck the county leaving several dead, 71 injured and causing millions of dollars of damages countywide. Towns on the largely rural-suburban western side of Orange County were quickly overwhelmed and the impact of numerous emergency response communications systems, non-area specific weather warning capabilities and cumbersome damage assessment processes were cited as major response weaknesses during the post event multi-jurisdictional after action review. The lack of ability to rapidly warn specific segments of towns within the county such as residents within a mobile home park or nursing home staff in the path of a dangerous weather event became priority problems in need of solution.

Orange County began to review existing technology processes across the country and found many fragmented solutions. In response, the Orange County Sheriff's Office began purchase procedures for a "Reverse 911" system that could be used for increased public warning. The Office of Emergency Management began investigating supplemental weather warning technology that could provide detailed area condition reports to support the more general National Weather Service (NWS) information available. The Fire Rescue Department identified the need to outfit it's existing Bell 402 helicopter with a real time video transmission down link capability to assist in damage assessment and incident analysis functions at the county and municipal levels. The problem became integrating the varying technology resources into a comprehensive package that would rapidly benefit both the public and a multitude of emergency response agencies.

Solution

Realizing the synergistic value of integrating these worthy technologies together, the Orange County Office of Emergency Management (OEM), designed the Automated Emergency Information System (AEIS). This proposed "bundling" of public safety technologies would allow a more effective means to provide varying needed services to county and municipal public service agencies across the county and with flexibility to

be used in different types of unfolding incidents.

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Components of the AEIS are easily integrated with the existing technologies of municipal and county public safety agencies such as the Public Service Answering Points (PSAP)-911 Centers, County Emergency Operations Center (EOC), 800 MHz radio systems in use in all jurisdictions, various county and city mobile command posts currently in existence. Besides direct benefits to public safety agencies and citizens, a direct byproduct of the AEIS is the value it can provide to public service agencies such as the Red Cross and Salvation Army both of which provide critical public support in sheltering, public feeding, providing emergency potable water and supporting human needs issues just after a disaster. Benefits to these agencies and others include: utilizing enhanced local weather information to assist in evacuation and shelter planning decisions; utilization of rapid aviation based damage assessment and analysis information to determine which geographic areas will need the resource support; and the ability to use specific features of the Reverse 911 system to notify large pools of relief volunteers from pre identified databases to expedite coordinated recovery operations.

Combined communications and warning technologies of the proposed AEIS will be located in the County 911/EOC where they can be constantly monitored and rapidly utilized. In addition, the centralized positioning within the EOC will allow for the greatest potential benefit to various local government and social services agencies which provide their various citizen support through the county's Emergency Support Function (ESF) style of EOC structure. By tying all of the AEIS functions into the 911/EOC location, system benefits can be provided to citizens countywide as well as to neighboring county residents and local governments which may have become victims of a disaster.

While AEIS will provide technology based benefits to citizens whether they reside in towns or rural areas, it can also provide value to regional and state populations as well as to public safety and service organizations agencies through the Statewide Mutual Aid Agreement (SMAA). The technology planned for use in AEIS will allow for major portions of the system to be extended outside of Orange County. Due to a history of past natural disaster events in Florida, AEIS segments like detailed regional weather data and the real time aviation down link capabilities can be expected to be extremely helpful in supporting rapid recovery efforts statewide.

This solution will provide a considerable safety improvement to rural, mobile home and other vulnerable residents as well as local and regional public safety providers by enhancing the comprehensive warning, communications and analysis functions of Orange County.

Outcomes

Orange County expects a number of measurable outcomes from this effort to assist both small and large local government in the public safety arena.

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We anticipate that fewer people will be killed and injured in future weather related events in the county's most at-risk population groups.

We expect that overall pre and post incident public safety capabilities will be significantly enhanced at multiple levels of local and regional government through the use of centralized expanded technologies available 24 hours a day.

We anticipate that public confidence in local government public safety capabilities will result from an increased planned and coordinated response and recovery ability.

We believe that greater cooperation between small town and county public safety agencies will result from their accessibility to enhanced technology and information sharing created by AEIS. Increased technology capability to under served communities.

It is expected that benefits of AEIS technology will extend to private service agencies such as the American Red Cross and Salvation Army which are tasked with critical human needs issues in the region.

We envision a better prepared and more rapidly coordinated regional and state response capability based on information technology bundled together for maximum usefulness.

SIGNIFICANCE

The Automated Emergency Information System is significant because it combines advanced but existing information technologies of various disciplines (warning, notification, weather, communication and visual analysis) into one affordable package that can provide multi-jurisdictional value to many several end users.

Innovation

AEIS' approach is innovative in the manner in which it combines existing public safety technology processes with new components that when combined provide expanded services to many while keeping costs down.

The focus of AEIS is also multifaceted in that the general public as well as under served highly vulnerable resident groups receive not only direct personal benefits but local public safety agencies do as well. This joint end user benefit, crossing numerous local and regional jurisdictional boundaries, results in a cost effective solution to numerous public safety problems across a wide spectrum including benefits to other neighbor governments who are not even partners in the project.

AEIS has the ability to create unique partnerships between rural, suburban and urban local governments, the at risk public, as well as private relief organizations in disaster response and recovery efforts. AEIS utilizes new and existing technology packaging to overcome public safety weaknesses while transcending numerous jurisdictional boundaries.

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Replicability

The types of problems encountered within Orange County are typical across the country. Due to the integration of select technology applications into basic relatively standard existing public safety systems, programs like AEIS are highly replicable. In addition, systems like AEIS can provide the added benefit of encouraging future interagency cooperation, rebuilding or improving public confidence in government and providing expanded capabilities to private public assistance agencies as well. All of these advantages are positive factors worthy of modeling.

PROJECT FEASIBILITY

Technical Issues

Citizens enrolled in the county's People with Special Needs (PSN) Program - a database registration process for elderly and medically needy independently living citizens who have no family support network; residents of the 152 organized mobile home parks; the staff of the county's 34 nursing homes; staffs of the 77 senior citizen's Assisted Living Facilities (ALF); municipal and county emergency response personnel and managers would be entered into the Sigma Micro Reverse 911 System database for select warning and notification via phone lines operated from the existing County 911 Center. This Reverse 911 system is made up of many sub-components including voice processors, geographic and listing calling software, database and mapping elements, phone line capturing devices for priority use and various rapid fax functions to distribute written or graphic messages. This sub-element alone offers some degree of flexibility and redundancy from the point of origin and can address specific or multiple target audiences based on particular need. This portion of AEIS will be purchased by the Orange County Sheriff's Office (OCSO) and installed in the jointly operated County 911 Center.

Emergency Operations Center (EOC) staff, including all twenty of the county's Emergency Support Functions (ESF) (specifics on Orange County's Emergency Response and EOC Structures are available in the appendix portion of this application); municipal Emergency Coordinating Officers (ECO) from each town and city; and the executive leadership of the county (Policy Group) would utilize the real time video transmission images from the Broadcast Microwave Services (BMS) omni directional aviation transmitter to the EOC mounted receiver at ranges of up to 50 miles. Field or incident specific operations managers could also view aerial details from 1-2 miles away via the orbiting helicopter through the portable short range receiver unit. Other EOC functions include combining the recently purchased "Radar Net" local Doppler system to a Nexrad weather interpretation/processing Internet service that will allow on site rapid dissection of approaching storms to determine which specific elements of a large storm front contain rotating winds, heavy rains, damaging hail, or high winds. The Nexrad processing and analysis capability can then be utilized to project specific threats and estimate specific paths. EOC personnel can then employ the Reverse 911 software and databases to warn the most vulnerable residents via the installed automatic dialing

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system which can notify up to 2,800 persons an hour (based on a 30 second message). The Lightning Tracking System can also be used in a similar matter to analyze specific lightning intensity hidden within storm fronts. Projected paths could then be interpreted resulting in anticipated related false Automatic Fire Alarm (AFA) situations (which require Fire/Rescue response and diminish response times to legitimate help calls) while allowing for effective staging of assets and public warning.

Communications and information sharing with town and municipal public safety organizations will initially be accomplished via existing redundant digital phone lines, currently standardized 800 MHz radio systems (all towns, cities and the county) and via the County EOC's "Softrisk" interactive emergency management information system which is currently in place and being extended beyond the County EOC to towns and cities. Softrisk allows for real time computer based messaging and information to be shared via each town EOC or Public Service Answering Point (PSAP).

Interoperability

AEIS' ability to work with existing systems and provide cumulative rapid information via phone, radio, Internet and video technology provides the greatest possible information and warning capability available at reasonable cost to all recipients.

Modernization and Upgrade

The flexible basic design of AEIS- combining new and existing technologies together- results in AEIS being highly adaptable for updating and enhancing the overall capability of the package as new portions become available. In addition, AEIS is an ideally suited platform for future technology capabilities obtained by towns and cities as well.

Alternative Considerations

Prior to consideration of AEIS, other potential systems were analyzed and discarded due to cost, inability to mesh with preexisting systems or limited use capabilities. Proposals to obtain such components as geo-software based gunshot locator systems and multiple styles of weather tracking and analysis programs were also bypassed in search of the most practical, cost effective and user friendly solutions.

Applicant Qualifications

The project team is composed of highly qualified experienced personnel from emergency management, public safety, communications and social service organizations within Orange County. Members have both extensive practical and academic experience - the best possible combination for success! The Executive Director, Orange County Office of Emergency Management, will oversee the grant and ultimately be responsible for project completion - the Project Manager. Specific highly focused technical support will be available from within county assets by the Directorate of Information Technologies as well as the Orange County Fire Department's

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Communications and Information Management Group as well as the Orange County Sheriff's Office 911 Computer Services element.

AEIS project members will include:

* Mr. Robert L. Lemley, Certified Emergency Manager (CEM) (recognized by the International Association of Emergency Managers), Executive Director, Orange County Office of Emergency Management. He is directly responsible for the design, budgeting, building and utilization of the county's current modern EOC and the related processes to make it functionally capable. Mr. Lemley is a retired US Army Warrant Officer with over twenty years encrypted signal and communications system experience. He has a bachelor's degree in Business Administration.

* Mr. Osman Aloyo, CEM, Assistant Emergency Program Manager, will serve as the Assistant Project Manager. Mr. Aloyo has over ten years of county and federal level emergency management experience combined with team leadership and organizations skills. He has a master's degree in Public Administration.

* Mr. Preston Cook, AEM, (Associate in Emergency Management), serves as the county's Communications and Warning Coordinator. He has extensive experience in identifying, analyzing and integrating suitable emergency management, weather, communications, satellite link and audio/video media systems for maximum functional employment. He has supervised the total installation, integration and operation of all EOC technical systems for the last six years. Mr. Cook will serve as the Technical Manager for this project.

*Mr. Greg Ek-Collins, AEM, Special Projects Coordinator, and Mr. Ed Dow, AEM, Public Awareness Coordinator, will serve to direct and coordinate all inter operability issues with the 911 Center, Sheriff's Office, Fire Rescue Division and municipal PSAP's. Mr. Dow was previously one of Orange County's 911 Center managers responsible for determining county 911 equipment needs, analyzing systems, coordinating with vendors and upgrading capabilities. Mr. Collins experience is also heavily based on past hands on 911 system and emergency response experience.

* Mr. William Moore, CEM, Emergency Management Planner, will be responsible for grant administration and reporting. Mr. Moore has a master's degree in Human Resources Development and over twenty four years in criminal investigation and emergency management. He currently writes and edits all grants, technical writing projects and award submissions for the Office of Emergency Management. His grant management experience includes managing current U. S. Department of Justice Terrorism Equipment Grants, Federal Emergency Management Agency (FEMA) Hazard Mitigation Grants as well as State of Florida Emergency Management Preparedness & Assistance Grants.

This project team has the extensive training, energy and experience to make AEIS a successful reality.

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Implementation Schedule/Timeline

This project will be three years in duration. Specific information about the implementation schedule and timeline are included in the Appendices.

Sustainability

This proposal establishes and enhances the infrastructure for continuity of providing current and expanded public safety services to citizens, emergency responders and specific at risk populations. The parent organization, the Office of Emergency Management, have projected adequate sustainability funding and technical support to successfully operate and fund this proposal beyond three years. Numerous ongoing technical projects such as AEIS are currently routinely maintained by this experienced staff.

COMMUNITY INVOLVEMENT

Partnerships

AEIS's central location will be the County combined EOC/Fire and Sheriff's 911 Center. Orange County will bear the responsibility for maintaining all equipment and also for providing all direct match funding and services. Data base information to support the system will be provided by numerous agencies including all municipalities, County Health Dept., Sheriff's Office, Fire Rescue Department, American Red Cross and The Salvation Army. Strong support for all aspects of this project has been provided and these agencies understand their responsibilities and have agreed to their roles in making the project a success.

Municipal public safety agencies are an integral part of the County's Comprehensive Emergency Management Plan (CEMP) and continue to support efforts to assist municipalities in response and recovery operations. Particularly smaller municipalities are very much aware of the benefits such a system can provide as they are immediately overwhelmed and look for county support in almost any type of emergency incident.

Involvement of the Community

AEIS is the result of input and identified deficiencies identified in recent disasters. These after action review processes were attended by all municipalities and social service agencies who provide direct or indirect roles in disaster management. AEIS is a composite of their input as well as county public safety agencies.

Support for End Users

As the attached "Proposed Topology" shows, AEIS is designed to provide access to all end users the benefit of all services and products that can support their needs. Solicitation of additional input from all agencies involved will continue as the AEIS system evolves and is upgraded based on changing needs or capabilities. Orange County will continue to use the Emergency Response Team process that is in place to solicit input. (This process is described in the appendices).

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Privacy

A major component of the AEIS is the county purchased Reverse 911 element. This system has built in data base protection to insure privacy without influencing function.

REDUCING DISPARITIES

Description and Documentation

According to 1998 University of Florida, Bureau of Economic and Business Research, 540,706 (63.5%) county residents reside in unincorporated, rural or suburban areas. 80,000 (9.7 %) county residents reside in vulnerable mobile homes and another 4,000 are People with Special Needs (PSN). 7,000 reside in nursing homes and another 1,000 residents reside in Assisted Living Facilities (ALF) requiring full time staff assistance to complete their daily activities. More than half of the incorporated towns or cities in the county have fewer than 6,000 residents and rely almost exclusively on county public safety resources to assist them with any event beyond routine daily activities.

These demographic and economic factors create a demand for solutions to provide greater practical solutions to citizen warning combined with a need to provide greater support to small towns and cities before during and after a resource intensive emergency. Disparities created by this inability to rapidly reach the most at risk populations combined with intense resource support needed by small municipal agencies create a potential for inadequate response capability exacerbated by large numbers of elderly and medically needy dead and injured.

Strategies for Overcoming Barriers to Access

By using advanced telecommunications and information technology, AEIS will compensate for this lack of resource support through reduction of injury and better resource coordination in areas of the county that would need the most assistance.

EVALUATION, DOCUMENTATION AND DISSEMINATION

Evaluation Plan

A multi-method approach will be used to evaluate the three major goals of this project (At Risk Population Warning; Improved Advance Weather Analysis; Enhanced Public Safety Communications and Coordination). Upon implementation baseline database information will be gathered from use of the Reverse 911 processes to target audiences during testing, exercises and actual response events. This baseline review process will continue through the life of AEIS to determine overall outreach effectiveness and improve processes to enhance such capability. In addition, existing disaster public awareness processes that are targeted to these populations in Orange County would be used to obtain verbal results and opinions from citizens. The Orange County Emergency Management Web Page (www.ocoem.com) is another tool that will be used to gather responses from citizens on effectiveness and make improvements. All

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three goals will be evaluated through this procedures that are currently in existence.

Documentation Plan

All evaluation data will be retained through existing OEM retainability processes. The OEM web page will be used to gather electronic responses from citizens and input from municipal public agencies is currently documented in monthly Emergency Coordinating Officer (ECO) meetings.

Dissemination Plan

The value of the OEM web page is critical here. Currently the web page provides both static information and updated and rapidly changing situation reports to all citizens and public service agencies that have access to the Internet. AEIS project reports and updates would be posted here as well as available in paper copy.

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